

**REMARKS**

Claims 1-12 are pending in this application. Claim 9 is cancelled without prejudice or disclaimer herein. Claim 1 is independent

Claim 9 stands rejected under 35 USC §112, first paragraph. Claim 9 is cancelled and accordingly the rejection is moot.

Claims 1-12 stand rejected under 35 USC §103(a), as obvious over the Osuna et al. article entitled "Training Support Vector Machines: an Application to Face Detection", in view of the article by Gutta et al. entitled "Gender Classification of Human Faces Using Hybrid Classifier Systems". The rejection is moot with respect to cancelled claim 9. The rejection of claims 1-8 and 10-12 is respectfully traversed.

The traversal arguments presented in the response filed on November 11, 2002, are incorporated herein in their entirety by reference.

With respect to claim 1, the Examiner acknowledges that Osuna fails to disclose the use of the described SVM for classifying the gender of a test image with respect to the hyperplane, as required by claim 1. The Examiner therefore proposes to modify Osuna based on Gutta's disclosure of a system for classifying the gender of a test image, to make obvious the invention recited in claim 1.

The Examiner asserts that it would have been obvious to so modify Osuna "since determining the gender of a person is one of the basic identifying features of a person, and Gutta teaches that a trainable learning system can be used to classify face images by gender. In addition, Osuna suggests that his classification system can be utilized to classify any 'object classes in the real world that share similar characteristics'".

However, it is first respectfully submitted that the quoted portion of Osuna, asserted in support of the Examiner's contention that the proposed modifications are motivated, when read in context, fails to provide the requisite support.

More particularly, as set forth in the bridging paragraph on pages 133 and 134, what Osuna discloses is that "there are many other object classes and phenomena in the real world that share similar characteristics, for example, tumor anomalies in MRI scans, structural defects in manufactured parts, etc." It is respectfully submitted that each of the object classes/phenomena identified by Osuna have substantially different patterns than the objects from which they are to be distinguished. That is, a tumor anomaly will have a much different pattern than a non-anomalous tumor, and a defect in a part will have a significantly different pattern than a non-defective manufactured part.

Furthermore, Osuna's system, as described, is capable of only performing a single determination. That is, whether or not a particular object is a face. There is nothing within Osuna to suggest that the SVM can make two separate determinations, such as whether an object is one thing or another thing (e.g. a male face or a female face).

Accordingly, it is respectfully submitted that there is nothing disclosed within either of the applied references to suggest the modifications proposed by the Examiner. Rather, what is suggested by the proposed combination of Osuna and Gutta is to first use Osuna's SVM to first detect a face and to then use Gutta's hybrid classifier system to determine if the face is male or female (see Gutta, section 3, first paragraph).

It is perhaps further worthwhile highlighting that the Gutta publication predated that of Osuna. Hence, one might expect that had Osuna recognized that an SVM could be utilized for gender classification, the Osuna publication would have explicitly referenced such an application in the examples set forth in the paragraph bridging pages 133 and 134. However, this is not the case.

One reason for Osuna's failure to suggest that the described technique could be utilized for gender classification may be because, as for example discussed by Gutta in the first paragraph of section 5, on page 1356, until the present invention it was conventionally believed that gender classification (which necessarily requires the detection of very slight differences in male and female faces) could only be performed using high resolution images (e.g. 4608 pixels).

As discussed, for example in section 3.2, on page 134, Osuna's system is practically limited to the utilization of low-resolution images (e.g. 361 pixel patterns). Hence, Osuna, consistent with conventional wisdom, would necessarily have concluded that it is impracticable to perform gender classification using the disclosed SVM.

Furthermore, taking the references as a whole, and assuming for the sake of argument that there was motivation to modify Osuna in view of Gutta, one skilled in the art would at best be motivated to attempt to utilize the high resolution images disclosed by Gutta with Osuna's SVM.

The Examiner points to paragraph 1, of section 5 of Gutta, on page 1356, as disclosing a reduction in the resolution of the training test images as required by claim 4. However, the Examiner then points to Osuna as disclosing that such reduction is too less than 260 pixels, as required by claim 6.

However, such a position is inconsistent with the teachings of Gutta, which requires a relatively high resolution image in order to classify gender. Furthermore, it is respectfully submitted that without hindsight consideration of the present application disclosure, there would be nothing in the applied prior art to suggest that the resolution of the training and test images used for classification of gender could be reduced below the 64x72 resolution disclosed by Gutta.

Additionally, claim 3 requires that the facial features include hair and that the scaled images are masked to reduce the amount of hair. The Examiner has not identified any disclosure within the base combination to support this rejection.

Claims 2 and 3 also stand rejected under 35 USC §103(a), as obvious over the base combination, in further view of Moghaddam (U.S. Patent No. 5,710,833). The rejection is respectfully traversed.

It should be noted that the applied Moghaddam reference has overlapping inventorship with that of the present application.

Claim 2 is distinguishable for the reasons discussed above with respect to its parent claim 1.

With respect to claim 3, the Examiner relies on Moghaddam's disclosure in column 11, lines 15-18, that the bounded image may be masked so as to include only the interior of the face and thereby reduce the amount of hair from the scaled image, in support of the rejection.

However, the relied upon reference relates to object detection, not object classification. Furthermore, until the present invention, it was conventionally considered necessary to include all imaged hair in both the training and test images when

performing gender classification, and there is nothing within any of the applied art references to suggest otherwise.

The Examiner argues that masking the scaled images to reduce the amount of hair is obvious in view of Moghaddam, because scalp hair is not a facial feature and is therefore immaterial to determining gender. However, it is respectfully submitted that the Examiner's assertion is inconsistent with the conventional thinking at the time of the present invention. As noted above, the conventional wisdom at the time considered scalp hair, which is most often cut and styled differently by men and women, to be very material to determining the gender of a face. It is respectfully submitted, that the Examiner's assertion can only be based on what has been disclosed in the present application, which contradicts prior conventional thinking.

Accordingly, it is respectfully requested that the rejection of claims 1-8 and 10-12 be reconsidered in view of the distinguishing features recited in, for example, claims 1, 3 and 6, as discussed in detail above.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed local telephone number, in order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, if any further comments, questions or suggestions arise in connection with the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the

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Respectfully submitted,

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